

What is claimed is:

1. A display apparatus in a vehicle, having a projection unit (1, 10) and having a display surface (4), the projection unit (1, 10) being arranged on a vehicle roof (2) and/or on an inside mirror (11) of the vehicle, wherein a real image is able to be projected by the projection unit (1, 10) onto the display surface (4).
2. The display apparatus as defined in Claim 1, wherein the display surface (4) is arranged on the vehicle in addition to a windshield (8), preferably adjacent to the windshield on an instrument panel (3) of the vehicle.
3. The display apparatus as defined in one of the foregoing claims, wherein a structural pattern (83) is arranged on the display surface (4); and projected light can be deflected by the structural pattern (83).
4. The display apparatus as defined in Claim 3, wherein the projected light can be deflected in the direction of a viewer (7).
5. The display apparatus as defined in Claim 3, wherein a reflective surface (70) is arranged adjacent to the display surface (4); and the projected light can be deflected onto the reflective surface (70).
6. The display apparatus as defined in one of Claims 3 through 5, wherein the structural pattern is configured as a roughening of the display surface.
7. The display apparatus as defined in one of Claims 3 through 6, wherein a layer (82) having a holographically introduced structure is arranged on the display surface (4).
8. The display apparatus as defined in one of Claims 3 through 7, wherein an outer surface (81) having a prism structure and/or a sawtooth structure (83) is arranged on the display surface

(4) .

9. The display apparatus as defined in one of the foregoing claims,  
wherein the display surface (50) is of semi-spherical configuration.

10. The display apparatus as defined in one of the foregoing claims,  
wherein a first image can be projected onto a first surface portion (61) of the display surface; and a second image can be projected onto a second surface portion (62) of the display surface.

11. The display apparatus as defined in one of the foregoing claims,  
wherein the projection unit (1, 10) is a video projector.

12. The display apparatus as defined in one of the foregoing claims,  
wherein a light source of the projection unit is a laser beam generation unit (31, 32, 33) .

13. The display apparatus as defined in Claim 12,  
wherein movable mirrors (51, 52, 53) are arranged in the projection unit (1, 10); and the light of the laser beam generation unit (31, 32, 33) can be deflected by the movable mirrors (51, 52, 53) .

14. The display apparatus as defined in one of the foregoing claims,  
wherein multiple light sources (31, 32, 33) of different colors are arranged in the projection unit.

15. The display apparatus as defined in one of the foregoing claims,  
wherein the path of the projected light from the projection unit (1, 10) to the display surface (4) is at least approximately parallel to a windshield (8) of the vehicle.